10-4-04

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PTO/SB/21 (04-04)

TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	10/808,946
Filing Date	March 24, 2004
First Named Inventor	KAWAMURA, Shunji
Art Unit	2114
Examiner Name	Unassigned
Total Number of Pages in This Submission: 9	Attorney Docket Number: 16869N-111900US

ENCLOSURES *(Check all that apply)*

- ☒ Fee Transmittal Form (in duplicate)
- ☐ Fee Attached
- ☐ Amendment/Reply
- ☐ After Final
- ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Response to Missing Parts/ Incomplete Application
- ☐ Response to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☒ Petition To Make Special (6 pages)
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Attorney, Revocation Change of Correspondence Address
- ☐ Terminal Disclaimer
- ☐ Request for Refund
- ☐ CD, Number of CD(s) _____
- ☐ After Allowance Communication to Technology Center (TC)
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☐ Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- ☐ Proprietary Information
- ☐ Status Letter
- ☒ Other Enclosure(s) (please identify below):

Return Postcard

Five (5) cited references

Remarks The Commissioner is authorized to charge any additional fees to Deposit Account 20-1430.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	Townsend and Townsend and Crew LLP Chun-Pok Leung Reg. No. 41,405
Signature	
Date	October 1, 2004

CERTIFICATE OF TRANSMISSION/MAILING

Express Mail Label: **EV 530887075 US**

I hereby certify that this correspondence is being deposited with the United States Postal Service with "Express Mail Post Office to Address" service under 37 CFR 1.10 on this date **October 1, 2004** and is addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below.

Typed or printed name	Joy Salvador		
Signature		Date	October 1, 2004

60322740 v1

PTO/SB/17 (10-03)

FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 130.00

Complete if Known	
Application Number	10/808,946
Filing Date	March 24, 2004
First Named Inventor	KAWAMURA, Shunji
Examiner Name	Unassigned
Art Unit	2114
Attorney Docket No.	16869N-111900US

METHOD OF PAYMENT *(check all that apply)*

☐ Check ☐ Credit Card ☐ Money Order ☐ Other ☐ None

☒ Deposit Account:

Deposit Account Number: 20-1430

Deposit Account Name: Townsend and Townsend and Crew LLP

The Director is authorized to: *(check all that apply)*

☒ Charge fee(s) indicated below ☒ Credit any overpayments

☒ Charge any additional fee(s) or any underpayment of fee(s)

☐ Charge fee(s) indicated below, **except for the filing fee** to the above-identified deposit account.

FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1001	770	2001	385	Utility filing fee	
1002	340	2002	170	Design filing fee	
1003	530	2003	265	Plant filing fee	
1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	

SUBTOTAL (1) ($)0.00

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

			Extra Claims		Fee from below		Fee Paid
Total Claims		-** =		X		=	
Independent Claims		-** =		X		=	
Multiple Dependent				X		=	

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
1202	18	2202	9	Claims in excess of 20
1201	86	2201	43	Independent claims in excess of 3
1203	290	2203	145	Multiple dependent claim, if not paid
1204	86	2204	43	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($)0.00

**or number previously paid, if greater; For Reissues, see above*

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet.	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	420	2252	210	Extension for reply within second month	
1253	950	2253	475	Extension for reply within third month	
1254	1,480	2254	740	Extension for reply within fourth month	
1255	2,010	2255	1,005	Extension for reply within fifth month	
1401	330	2401	165	Notice of Appeal	
1402	330	2402	165	Filing a brief in support of an appeal	
1403	290	2403	145	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive – unavoidable	
1453	1,330	2453	665	Petition to revive – unintentional	
1501	1,330	2501	665	Utility issue fee (or reissue)	
1502	480	2502	240	Design issue fee	
1503	640	2503	320	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	130
1807	50	1807	50	Petitions related to provisional applications	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	770	2809	385	Filing a submission after final rejection (37 CFR § 1.129(a))	
1810	770	2810	385	For each additional invention to be examined (37 CFR § 1.129(b))	
1801	770	2801	385	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	
				Other fee (specify) ———	

*Reduced by Basic Filing Fee Paid **SUBTOTAL (3)** ($)130.00

SUBMITTED BY				Complete *(if applicable)*	
Name (Print/Type)	Chun-Pok Leung	*Registration No. (Attorney/Agent)*	41,405	*Telephone*	650-326-2400
Signature				*Date*	October 1, 2004

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

60322728 v1

PATENT
Attorney Docket No.: 16869N-111900US
Client Ref. No.: NT1530US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

SHUNJI KAWAMURA *et al.*

Application No.: 10/808,946

Filed: March 24, 2004

For: DATA PROCESSING SYSTEM

Customer No.: 20350

Examiner: Unassigned

Technology Center/Art Unit: 2114

Confirmation No.: 6341

PETITION TO MAKE SPECIAL FOR NEW APPLICATION UNDER M.P.E.P. § 708.02, VIII & 37 C.F.R. § 1.102(d)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is a petition to make special the above-identified application under MPEP § 708.02, VIII & 37 C.F.R. § 1.102(d). The application has not received any examination by an Examiner.

(a) The Commissioner is authorized to charge the petition fee of $130 under 37 C.F.R. § 1.17(i) and any other fees associated with this paper to Deposit Account 20-1430.

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(b) All the claims are believed to be directed to a single invention. If the Office determines that all the claims presented are not obviously directed to a single invention, then Applicants will make an election without traverse as a prerequisite to the grant of special status.

(c) Pre-examination searches were made of U.S. issued patents, including a classification search and a computer database search. The searches were performed on or around August 18, 2004, and were conducted by a professional search firm, Kramer & Amado, P.C. The classification search covered Classes 707 (subclasses 202, 203, and 204) and 714 (subclasses 6, 7, and 13) for the U.S. and foreign subclasses identified above. The computer database search was conducted on the USPTO systems EAST and WEST, as well as for EPO and JPO documents. The inventors further provided a reference considered most closely related to the subject matter of the present application (see reference #5 below), which was cited in the Information Disclosure Statement filed with the application on March 24, 2004.

(d) The following references, copies of which are attached herewith, are deemed most closely related to the subject matter encompassed by the claims:

(1) U.S. Patent No. 5,555,371;

(2) U.S. Patent No. 5,870,537;

(3) U.S. Patent No. 6,732,124 B1;

(4) U.S. Patent Publication No. 2003/0172093 A1; and

(5) U.S. Patent No. 4,244,019.

(e) Set forth below is a detailed discussion of references which points out with particularity how the claimed subject matter is distinguishable over the references.

A. Claimed Embodiments of the Present Invention

The claimed embodiments relate to data processing systems, and more particularly to a data processing system that is suitable for use with a technology to distribute and store journals in a plurality of sites.

Independent claim 1 recites a data processing system comprising a primary site which includes a first computer and a first storage system connected to the first computer; and a secondary site which includes a second storage system connected to the second computer. The first storage system and the second storage system are connected to each other via a communication line. The first storage system records update history of data as a journal in a storage device, and transfers the journal to the second storage system via the communication line. The second storage system stores the transferred journal to a storage device.

Independent claim 12 recites a data processing system comprising a primary site which includes a first computer and a first storage system connected to the first computer; and a secondary site which includes a second computer and a second storage system connected to the second computer. The first computer and the second computer are connected to each other via a first communication line. The first storage system and the second are connected to each other via a second communication line. The first storage system records data update history in a storage device as a journal. The first computer acquires information related to the journal from the first storage system and transmits the information to the second storage system via the first communication line. The first storage system transfers the journal to the second storage system via the second communication line. The second storage system stores the transferred journal in a storage device.

Independent claim 15 recites a data processing system comprising a primary site which includes a first computer and a first storage system connected to the first computer; and a secondary site which includes a second computer and a second storage system connected to the second computer. The first storage system and the second storage system are connected to each other via a communication line. The first storage system includes a first storage controller and a first storage device. The first storage controller executes a journal acquisition program which records data update history in the first storage device as a journal, and a journal transfer program which transfers the journal to the storage system via the communication line. The second storage system includes a second storage controller and a second storage device. The second storage control system executes a journal reflection program which recovers data based on a journal and a journal transfer program which receives the transferred journal from the first storage system, when the journal is being

transferred from the first storage system to the second storage system. The first storage controller, while the journal is being stored in a certain logical volume of the first storage system, switches a logical volume for storage to another logical volume of the first storage device. The second storage controller, while the journal is being transferred to a certain logical volume of the second storage device, switches a transfer-target logical volume to another logical volume of the second storage device.

In the present invention, since recovery is performed by transferring a journal, not mere data, to the secondary site, it is possible to quickly recover data at no particular point of time upon occurrence of a failure, thus ensuring to guarantee data consistency. Further, the primary storage system incorporates a plurality of logical volumes that store journals, and concentration of logical volumes and accesses in the journal transfer source can be avoided by switching storage logical volumes used at this time for journal logs, thus ensuring adequate load balancing. Likewise, in the secondary storage system, concentration of accesses can be avoided by switching a logical volume of the journal transfer target that is used for journal transfer to set a volume different from the logical volume, thus ensuring adequate load balancing. See specification at page 3, line 19 to page 4, line 11.

B. Discussion of the References

None of the following references disclose a first storage system that records update history of data as a journal in a storage device, and transfers the journal to the second storage system via the communication line; and a second storage system that stores the transferred journal to a storage device.

The references further fail to teach a first storage system that records data update history in a storage device as a journal; a first computer that acquires information related to the journal from the first storage system and transmits the information to the second storage system via the first communication line; and a second storage system that stores the journal transferred from the first storage system via the second communication line.

The references also fail to disclose a first storage controller that executes a journal acquisition program which records data update history in the first storage device as a journal, and a journal transfer program which transfers the journal to the storage system via the communication line; a second storage control system that executes a journal reflection

program which recovers data based on a journal and a journal transfer program which receives the transferred journal from the first storage system when the journal is being transferred from the first storage system to the second storage system; wherein the first storage controller, while the journal is being stored in a certain logical volume of the first storage system, switches a logical volume for storage to another logical volume of the first storage device; and wherein the second storage controller, while the journal is being transferred to a certain logical volume of the second storage device, switches a transfer-target logical volume to another logical volume of the second storage device.

1. U.S. Patent No. 5,555,371

This reference discloses a primary and secondary data processing systems coupled via a communication system, with data storage in both systems provided by a log structured array (LSA) system that stores data; and each time data is updated within the LSA, the updated data is stored in a data storage location different from the original data, providing a consistency group of data.

2. U.S. Patent No. 5,870,537

This reference discloses a data processing system including a primary site and a secondary site, with the primary site having a primary host processor running record updates, a primary data storage device for receiving the I/O operations and storing the record updates, a secondary site having a secondary host processor communicating with the primary host processor, a secondary data storage device for storing a copy of the record updates for data shadowing of the primary data storage device, and a secondary storage controller coupled between the secondary host processor and the secondary data storage device. It also shows a method in which primary site switch secondary data storage device, having the primary data storage device receiving I/O operations and record updates from the primary host processor.

3. U.S. Patent No. 6,732,124 B1

This reference discloses a data processing system with a logging mechanism that stores log records having a primary storage subsystem; a secondary storage subsystem; a plurality of metadata volumes created in secondary storage subsystem, that store a plurality of

metadata objects describing files; and a log volume created in a secondary storage subsystem, that stores log records describing updates made to the metadata objects.

4. U.S. Patent Publication No. 2003/0172093 A1

This reference discloses a controller that designates a first server as the primary server and the second server as the secondary server, having the first server sending recovery data output by the application to a second server via the communication means.

5. U.S. Patent No. 4,244,019

This reference relates to a primary data processing system comprising a main store, a storage unit, an instruction unit, an execution unit, a console unit and a channel unit for performing primary system programs. The console unit includes a secondary digital computer for performing secondary programs which functions to observe and/or alter the primary system. The functions performable by the secondary system include altering the primary system control state, causing primary commands to be executed, controlling primary data and addresses, and scanning out primary information. The console is connected through a command bus, an address bus and a data bus to the controls and data paths of the channel unit, of the instruction unit and of the storage unit.

(f) In view of this petition, the Examiner is respectfully requested to issue a first Office Action at an early date.

Respectfully submitted,

Chun-Pok Leung
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Attachments
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